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Application No. <u>09992123</u>	Prepared by <u>PG</u>	Tracking Number <u>X</u>	
Examiner-GAU <u>Bell-2675</u>	Date <u>7-25-3</u>	Week Date <u>X</u>	
	No. of queries <u>1</u>		

JACKET			
a. Serial No.	f. Foreign Priority	k. Print Claim(s)	p. PTO-1449
b. Applicant(s)	g. Disclaimer	l. Print Fig.	(g) PTOL-85b
c. Continuing Data	h. Microfiche Appendix	m. Searched Column	r. Abstract
d. PCT	i. Title	n. PTO-270/328	s. Sheets/Figs
e. Domestic Priority	j. Claims Allowed	o. PTO-892	t. Other

SPECIFICATION	MESSAGE <u>NOA: The 3-24-3 notice of allowance and allowability were returned as undeliverable. Please mail new notices.</u>
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h. Sequence Listing	
i. Appendix	
j. Amendments	
k. Other	
<b>CLAIMS</b>	
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/992,123	11/13/2001	Louis B. Rosenberg	IMMR-019/02US	1417

22903 7590 03/24/2003

COOLEY GODWARD LLP  
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11951 FREEDOM DRIVE, SUITE 1700  
ONE FREEDOM SQUARE- RESTON TOWN CENTER  
RESTON, VA 20190-5061

EXAMINER

BELL, PAUL A

ART UNIT

PAPER NUMBER

2675

DATE MAILED: 03/24/2003

## Match and Return

### Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The patent term adjustment to date is 0 days. If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the term adjustment will be 0 days.

If a continued prosecution application (CPA) was filed in the above-identified application, the filing date that determines patent term adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system. (<http://pair.uspto.gov>)

Any questions regarding the patent term extension or adjustment determination should be directed to the Office of Patent Legal Administration at (703)305-1383.

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above, or being facsimile transmitted to the USPTO, on the date indicated below.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/992,123	11/13/2001	Louis B. Rosenberg	IMMR-019/02US	1417

**TITLE OF INVENTION:** FORCE FEEDBACK APPLICATIONS BASED ON CURSOR ENGAGEMENT WITH GRAPHICAL TARGETS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1300	\$300	\$1600	06/24/2003

EXAMINER	ART UNIT	CLASS-SUBCLASS
BELL, PAUL A	2675	345-856000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

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## **3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) ☐ individual ☐ corporation or other private group entity ☐ government

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

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Art Unit: 2675

### REASONS FOR ALLOWANCE

1. The following is a statement of reasons for the indication of allowable subject matter:  
The invention as claimed in applicant's independent claims 44, 56, and 66 when considered as a whole, the exact arrangement of parts and/or the inter connections and functions, is not taught nor suggested by the prior art made of record.

With regard to claim 44 the prior art of record does not teach or fairly suggest the feature **"outputting a tactile sensation based upon the speed of the cursor when the cursor engages the graphical target"**, this limitation is illustrated in 5,825,308 figure 13, column 25, line 30 - column 26, line 42 and col 27, line 60- column 28, line 9. The applicant has overcome the closest art of record Barber 5,973,670 filed Dec. 31, 1996 by showing support for his CIP of parent 5,825,308 filed Nov 26, 1996. No other references of record illustrate or suggest the above specific feature.

With regard to claims 56 and 66 the applicant has overcome the double patent rejection of claims 56 and 66 by filing a terminal disclaimer with 6,317,116. With further regard to claims 56 and 66 the prior art of record does not teach or fairly suggest the feature; **"outputting a tactile feedback command to be provided to the interface device to cause a tactile sensation when the cursor engages the graphical target; detecting whether the cursor has moved to or past a trigger location in the graphical target; selecting a function within a graphical user**

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Art Unit: 2675

interface when the cursor has moved to or past the trigger location; and modifying the tactile sensation, the modifying being associated with the selecting of the function." None of the art of record illustrate these specific events in this order in combination with modifying tactile feedbacks.


2. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Bell whose telephone number is (703) 306-3019. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras, can be reached at (703) 305-9720.

Any response to this action should be mailed to: Commissioner of Patents and Trademarks  
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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

*Paul Bell*  
Paul Bell  
Art unit 2675  
20 March 2003

  
STEVEN SARAS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

Please type a plus sign (+) inside this box +

1/3

#9

Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)			<b>Complete if Known</b>		
			Application Number	09/992,123	
			Filing Date	November 13, 2001	
			First Named Inventor	Louis B. ROSENBERG et al.	
			Group Art Unit	2675	
			Examiner Name	Paul A. Bell	
			Attorney Docket Number	IMMR-019/02US	
Sheet	1	of	3		

PTO/SB/08A (08-00)

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	
		Number	Kind Code <sup>2</sup> (if known)			
PAB	A1	5,785,630		Bobick, et al.	07/28/1998	
PAB	A2	5,766,016		Sinclair et al.	06/16/1998	
PAB	A3	5,547,382		Yamasaki et al.	08/20/1996	
PAB	A4	5,466,213		Hogan et al.	11/14/1995	
PAB	A5	5,334,027		Wherlock	08/02/1994	
PAB	A6	5,309,140		Everett, Jr., et al.	05/03/1994	
PAB	A7	5,299,810		Pierce et al.	04/05/1994	
PAB	A8	5,275,174		Cook	01/04/1994	
PAB	A9	5,271,290		Fischer	12/21/1993	
PAB	A10	5,240,417		Smithson et al.	08/31/1993	
PAB	A11	5,212,473		Louis	05/18/1993	
PAB	A12	5,078,152		Bond et al.	01/07/1992	
PAB	A13	5,038,089		Szalkaly	08/06/1991	
PAB	A14	5,035,242		Franklin et al.	07/30/1991	
PAB	A15	5,022,407		Horch et al.	06/11/1991	
PAB	A16	5,019,761		Kraft	05/28/1991	
PAB	A17	4,934,694		McIntosh	06/19/1990	
PAB	A18	4,930,770		Baker	06/05/1990	
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PAB	A20	4,794,392		Selinko	12/27/1988	
PAB	A21	4,713,007		Alban	12/15/1987	
PAB	A22	4,708,656		de Vries et al.	11/24/1987	
PAB	A23	4,599,070		Hladky et al.	07/08/1986	
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PAB	A25	4,513,235		Acklam et al.	04/23/1985	
PAB	A26	4,236,325		Hall et al.	12/02/1980	
PAB	A27	4,160,508		Salisbury, Jr.	07/10/1979	
PAB	A28	3,911,416		Feder	10/07/1975	
PAB	A29	3,903,614		Diamond et al.	09/09/1975	
PAB	A30	3,902,687		Hightower	09/02/1975	
PAB	A31	3,623,064		Kagan	11/23/1971	
PAB	A32	3,517,446		Corlyon et al.	06/30/1970	
PAB	A33	3,497,668		Hirsch	02/24/1970	
PAB	A34	3,220,121		Cutler	11/30/1965	
PAB	A35	3,157,853		Hirsch	11/17/1964	

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
PAB	B1		0 349 086	A1	Stork Kwant B.V.	01/03/1990	

<sup>1</sup> Unique citation designation number.

<sup>2</sup> See attached Kinds of U.S. Patent Documents.

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Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	09/992,123
				Filing Date	November 13, 2001
				First Named Inventor	Louis B. ROSENBERG et al.
				Group Art Unit	2675
				Examiner Name	Paul A. Bell
Sheet	2	of	3	Attorney Docket Number	IMMR-019/02US

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
PAB	C1	Balgrie, "Electric Control Loading - A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990			
PAB	C2	Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993			
PAB	C3	Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90			
PAB	C4	Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985			
PAB	C5	Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990			
PAB	C6	Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," <i>1993 IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993			
PAB	C7	Snow et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989			
PAB	C8	Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990			
PAB	C9	Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90			
PAB	C10	Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993			
PAB	C11	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992			
PAB	C12	Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WA11-11:00, pp. 332-337			
PAB	C13	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992			
PAB	C14	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992			
PAB	C15	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telem manipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993			
PAB	C16	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990			
PAB	C17	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90			
PAB	C18	Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980			
PAB	C19	Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981			
PAB	C20	McAfee et al., "Teleoperator Subsystem/Teleobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," JPL 1988, JPL D-5172			
PAB	C21	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95			
PAB	C22	Jacobsen et al., "High Performance, Dextrous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference &amp; Exposition</i> , Hollywood, Florida, May 21-23, 1991			
PAB	C23	Shimoga, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," <i>Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration</i> , Rensselaer Polytechnic Institute, Sep. 30- Oct. 1, 1992			
PAB	C24	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990			
PAB	C25	Terry et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference, University of New Hampshire</i> , March 10-11, 1988			
PAB	C26	Howe, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation</i> , Nice, France, May 1992			
PAB	C27	Eberhardt et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993			
PAB	C28	Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987			

3/3

#9

Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<i>Complete if Known</i>	
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				First Named Inventor	Louis B. ROSENBERG et al.
				Group Art Unit	2675
				Examiner Name	Paul A. Bell
Sheet	3	of	3	Attorney Docket Number	IMMR-019/02US

PAB	C29	Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers</i> , San Francisco, CA, August 12-15, 1980	
PAB	C30	Bejczy et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," <i>SOAR '89 Workshop, JSC</i> , Houston, TX, July 25-27, 1989	
PAB	C31	Ohbyoung et al., "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," <i>IEEE Transactions on Consumer Electronics</i> , Vol. 41, No. 3, August 1995	
PAB	C32	Marcus, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge</i> , Sep. 8-11, 1994	
PAB	C33	Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number.

<sup>2</sup> Applicant is to place a check mark here if English language Translation attached.

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Paul Bell

3/20/2003